REMARKS

Claims 1-19, 26-32, and 43 were previously pending in this patent application. Claims 1-5, 8-17, 19, and 26-31 stand rejected. Claims 6-7, 18, 32, and 43 are objected to. Herein, Claims 1 and 10 have been amended. Accordingly, after this Amendment and Response, Claims 1-19, 26-32, and 43 remain pending in this patent application. Further examination and reconsideration in view of the claims, remarks, and arguments set forth below is respectfully requested.

35 U.S.C. Section 103(a) Rejections

Claims 1-5 and 10-14 stand rejected under 35 U.S.C. 103(a) as being unpatentable over Lloyd et al., U.S. Patent No. 6,434,211 (hereafter Lloyd) in view of Loewenstein, U.S. Patent No. 5,886,660 (hereafter Loewenstein). These rejections are respectfully traversed.

Independent Claim 1 recites:

> A method for timestamping events in a primary event stream, the method comprising:
> receiving the primary event stream;
> apportioning events in the primary event stream among a plurality of secondary event streams; and
> ***timestamping events*** in each of the plurality of secondary event streams ***such that each timestamp represents a known value at the occurrence of a given event***, wherein each timestamp has a first component comprising a specific clock cycle of a reference clock and a second component comprising a time at which the given event occurs within the specific clock cycle. (emphasis added)

It is respectfully asserted that there is no suggestion, motivation, or teaching found in the cited references (Lloyd and Loewenstein) to combine them. Moreover, the combination of the cited references does not teach, suggest, or motivate all the limitations in Independent Claim 1.

In particular, Independent Claim 1 recites the limitation, "***timestamping events*** in each of the plurality of secondary event streams ***such that each timestamp represents a known value at the occurrence of a given event***," (emphasis added). In contrast, Lloyd is directed to circuits to record/measure duration/time of intervals between events or generating a signal representing time elapsed between events or counting the number of events occurring within a given period instead of timestamping the events or recoding the time of the occurrence of each event, as in the invention of Independent Claim 1. [Lloyd; Abstract; Col. 3, lines 15-25; Col. 16, lines 27-31]. That is, intervals between events, time elapsed between events, or number of events occurring within a given period may be recorded/measured, but the time of the occurrence of an event is not measured or recorded with a timestamp. Moreover, although the Office Action uses the terms "timestamp circuit" with respect to Lloyd, Lloyd uses the terms "timing circuit" and never uses the term "timestamp", strongly suggesting that Lloyd is directed to time between events instead to the time of the occurrence of an event.

Further, Loewenstein is directed to a time-to-digital converter using time stamp extrapolation instead of being directed to timestamping events in each of

the plurality of secondary event streams such that each timestamp represents a known value at the occurrence of a given event, as in the invention of Independent Claim 1. According to Loewenstein, a first trigger event occurs at point (402) which corresponds to time x0. [Loewenstein; Col. 4, lines 15-67]. Since the value of time x0 is not known at the occurrence of the first trigger event, the function of the time-to-digital converter of Loewenstein is to precisely determine the value of time x0 after the occurrence of first trigger event. Id. In one embodiment, the time x0 is calculated after the occurrence of first trigger event from the following information: the initial amplitude of ramp signal (401), the amplitude of ramp signal (401) at time x1, the amplitude of signal (401) at time x2, and the time interval between times x2 and x1. Id. The combination of Lloyd and Loewenstein fails to disclose all the limitations of Independent Claim 1, as discussed above. Therefore, it is respectfully submitted that Independent Claim 1 is patentable over the combination of Lloyd and Loewenstein and is in condition for allowance.

Dependent Claims 2-5 and 8-9 are dependent on allowable Independent Claim 1, which is allowable over the combination of Lloyd and Loewenstein. Hence, it is respectfully submitted that Dependent Claims 2-5 and 8-9 are patentable over the combination of Lloyd and Loewenstein for the reasons discussed above.

With respect to Independent Claim 10, it is respectfully submitted that Independent Claim 10 recites similar limitations as in Independent Claim 1. In particular, Independent Claim 10 recites the limitation, "each of the plurality of timestamp circuits ***record the times at which events occur*** in the respective received secondary event stream ***such that each recorded time represents a known value at the occurrence of a given event***," (emphasis added). The combination of Lloyd and Loewenstein fails to disclose the cited limitation of Independent Claim 10, as discussed above. Therefore, it is respectfully submitted that Independent Claim 10 is patentable over the combination of Lloyd and Loewenstein and is in condition for allowance for reasons discussed in connection with Independent Claim 1.

Dependent Claims 11-14 are dependent on allowable Independent Claim 10, which is allowable over the combination of Lloyd and Loewenstein. Hence, it is respectfully submitted that Dependent Claims 11-14 are patentable over the combination of Lloyd and Loewenstein for the reasons discussed above.

Claims 8-9 stand rejected under 35 U.S.C. 103(a) as being unpatentable over Lloyd et al., U.S. Patent No. 6,434,211 (hereafter Lloyd), in view of Loewenstein, U.S. Patent No. 5,886,660 (hereafter Loewenstein), and further in view of Boerker, U.S. Patent Application Publication No. US2003/0035502 (hereafter Boerker). These rejections are respectfully traversed.

Dependent Claims 8-9 are dependent on allowable Independent Claim 1, which is allowable over the combination of Lloyd and Loewenstein. Moreover, Boerker does not disclose timestamping events in each of the plurality of secondary event streams such that each timestamp represents a known value at the occurrence of a given event, as in the invention of Independent Claim 1. Hence, it is respectfully submitted that Independent Claim 1 is patentable over the combination of Lloyd, Loewenstein, and Boerker for the reasons discussed above. Since Dependent Claims 8-9 depend from Independent Claim 1, it is respectfully submitted that Dependent Claims 8-9 are patentable over the combination of Lloyd, Loewenstein, and Boerker for the reasons discussed above.

Claims 15-17 and 19 stand rejected under 35 U.S.C. 103(a) as being unpatentable over Lloyd et al., U.S. Patent No. 6,434,211 (hereafter Lloyd), in view of Loewenstein, U.S. Patent No. 5,886,660 (hereafter Loewenstein), and further in view of Fransson, U.S. Patent No. 5,940,467 (hereafter Fransson). These rejections are respectfully traversed.

Dependent Claims 15-17 and 19 are dependent on allowable Independent Claim 10, which is allowable over the combination of Lloyd and Loewenstein. Moreover, Fransson does not disclose that each of the plurality of timestamp circuits record the times at which events occur in the respective received secondary event stream such that each recorded time represents a

known value at the occurrence of a given event, as in the invention of Independent Claim 10. Hence, it is respectfully submitted that Independent Claim 10 is patentable over the combination of Lloyd, Loewenstein, and Fransson for the reasons discussed above. Since Dependent Claims 15-17 and 19 depend from Independent Claim 1, it is respectfully submitted that Dependent Claims 15-17 and 19 are patentable over the combination of Lloyd, Loewenstein, and Fransson for the reasons discussed above.

Claims 26-31 stand rejected under 35 U.S.C. 103(a) as being unpatentable over Fransson, U.S. Patent No. 5,940,467 (hereafter Fransson), in view of Tambe et al., U.S. Patent No. 4,996,474 (hereafter Tambe). These rejections are respectfully traversed.

Independent Claim 26 recites:

> A circuit for apportioning events in a signal, the circuit comprising:
> a first counter coupled to receive ***a signal having a plurality of events***; and
> a first plurality of gates, ***each gate of the first plurality of gates coupled to receive the signal*** and ***each gate of the first plurality of gates coupled to receive a respective control signal from the first counter***, wherein the events of the signal are apportioned among the outputs of the first plurality of gates as a function of the respective control signal from the first counter. (emphasis added)

It is respectfully asserted that there is no suggestion, motivation, or teaching found in the cited references (Fransson and Tambe) to combine them.

Moreover, the combination of the cited references does not teach, suggest, or motivate all the limitations in Independent Claim 26.

In particular, Independent Claim 26 recites the limitations, "***a signal having a plurality of events***," (emphasis added), "***each gate of the first plurality of gates coupled to receive the signal***," (emphasis added), and "***each gate of the first plurality of gates coupled to receive a respective control signal from the first counter***," (emphasis added). In the Office Action, element (31) of Fransson is described as a first counter and elements (71, 72, 73, 74, 75, and 76) of Fransson are described as the first plurality of gates. However, Fransson describes element (31) as a clock instead of a counter. [Fransson; Figure 1]. Moreover, Fransson describes the elements (71, 72, 73, 74, 75, and 76) as representing the signal generator (70) of Figure 2. [Fransson; Figure 2, Col. 4, lines 38-44]. Further, Figure 2 of Fransson shows the signal generator (70) coupled to transmit a respective signal to counters (50-1, 50-2, 50-3, and 50-4) instead of showing gates coupled to receive a respective control signal from the first counter, as in the invention of Independent Claim 26.

Further, it is admitted in the Office Action that Fransson fails to disclose a signal having a plurality of events. Although Col. 3, lines 33-45 and Col. 4, lines 38-56 of Tambe are cited as showing the first counter coupled to receive the signal having a plurality of events, these cited portions and the rest of Tambe also fail to show each gate of the first plurality of gates coupled to receive the

signal and each gate of the first plurality of gates coupled to receive a respective control signal from the first counter, as in the invention of Independent Claim 26. Further, Tambe specifically states that it is directed to a method of digitally controlling the gate for a timing counter, to open and close the gate based on the occurrence of signal events, rather than on the envelop of the pulse instead of being directed to the events of a signal being apportioned among the outputs of the first plurality of gates as a function of the respective control signal from the first counter, as in the invention of Independent Claim 26. [Tambe; Col. 2, lines 22-25]. Also, Tambe describes a gating circuit (217) of Figure 2 that generates a gate signal for the event and time counter circuits (219), wherein the gating circuit (217) has the counter (301) outputting a "Close Gate" signal that is applied to logic array (307) instead of describing each gate of the first plurality of gates coupled to receive a respective control signal from the first counter. [Tambe; Figures 2 and 3; Col. 4, lines 38-50]. The combination of Fransson and Tambe fails to disclose all the limitations of Independent Claim 26, as discussed above. Therefore, it is respectfully submitted that Independent Claim 26 is patentable over the combination of Fransson and Tambe and is in condition for allowance.

Dependent Claims 27-31 are dependent on allowable Independent Claim 26, which is allowable over the combination of Fransson and Tambe. Hence, it is respectfully submitted that Dependent Claims 27-31 are patentable over the combination of Fransson and Tambe for the reasons discussed above.

Allowable Subject Matter

Claims 6-7, 18, 32, and 43 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

Dependent Claims 6-7 and 43, Dependent Claim 18, and Dependent Claim 32 are dependent on allowable Independent Claim 1, 10, and 26 respectively. Hence, it is respectfully submitted that Dependent Claims 6-7, 18, 32, and 43 are patentable for the reasons discussed above.

CONCLUSION

It is respectfully submitted that the above claims, arguments, and remarks overcome all rejections. All remaining claims (Claims 1-19, 26-32, and 43) are neither anticipated nor obvious in view of the cited references. For at least the above-presented reasons, it is respectfully submitted that all remaining claims (Claims 1-19, 26-32, and 43) are in condition for allowance.

The Examiner is urged to contact Applicant's undersigned representative if the Examiner believes such action would expedite resolution of the present Application.

Please charge any additional fees or apply any credits to our PTO deposit account number: 23-0085.

Respectfully submitted,

WAGNER, MURABITO & HAO, LLP

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Jose S. Garcia

Jose S. Garcia
Registration No. 43,628

Two North Market Street, Third Floor
San Jose, CA 95113
(408) 938-9060